

# New risk model may improve the prediction of preterm birth

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The health outcomes of preterm babies can be significantly improved by timely and appropriate interventions in women presenting with preterm labor. However, the non-specific nature of presenting signs and

symptoms of preterm labor make it challenging to diagnose, and unnecessary overtreatment is both common and costly. A study published in *PLOS Medicine* by Sarah Stock at the University of Edinburgh, United Kingdom and colleagues suggests that a newly developed risk prediction model may improve the prediction of impending preterm births.

To improve the prediction of impending preterm birth, the researchers developed and validated a risk prediction model. The researchers first identified clinical risk factors for [preterm labor](#) by analyzing individual participant data from five European prospective cohort studies, including 1,783 pregnant European [women](#), and used these to develop a model to predict risk of spontaneous preterm birth. This model was then externally validated in a [prospective cohort study](#) of 2,924 women with signs and symptoms of preterm labor from 26 consultant-led obstetric units in the United Kingdom, to demonstrate the difference between predicted and observed outcomes.

The authors found that using a risk prediction model that included vaginal fluid fetal fibronectin concentration analysis alongside clinical risk factors improved the prediction of impending spontaneous preterm birth and was cost-effective in comparison to fetal fibronectin alone. The study noted several limitations, including few non-White participants, as well as [missing data](#) in the risk predictor development cohort. Further studies are required to determine whether the risk prediction model improves clinical outcomes in practice.

According to the authors, "The risk prediction model showed promising performance in the [prediction](#) of spontaneous preterm birth within seven days of testing and can be used as part of a decision support tool to help guide management decisions for women at risk of preterm labor. It is readily implementable, with potential for immediate benefit to women and babies and health services, through avoidance of unnecessary

admission and treatment".

Dr. Stock notes, "The vast majority of women with signs and symptoms of preterm labour don't actually give birth early, but many receive unnecessary hospital admission just in case of [preterm birth](#). The risk predictor developed by our research team will help women to understand their chance of giving birth early, so they can decide whether or not to have admission and treatment. We are now working towards linking the predictor to maternity records, so it can easily be used as part of women's care and be continually improved as more women use it."

**More information:** Stock SJ, Horne M, Bruijn M, White H, Boyd KA, Heggie R, et al. (2021) Development and validation of a risk prediction model of preterm birth for women with preterm labour symptoms (the QUIDS study): A prospective cohort study and individual participant data meta-analysis. *PLoS Med* 18(7): e1003686.  
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